SATISFACTION WITH THE QUALITY OF HEALTH CARE SERVICES AT HUE UNIVERSITY HOSPITAL

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Abstract: This study focuses on examining the patient's satisfaction with the quality of health care services at Hue University Hospital. Data were collected from 200 patients. The scale of measuring the quality of health care services was developed based on the SERVQUAL scale. Reliability and validity of the scale were evaluated by Cronbach's Alpha and Exploratory Factor Analysis (EFA). Results from multi linear regression show that there are six components contributing to the patients' satisfaction, as follows: Assurance (0.403), Tangible (0.208), Price (0.184), Image (0.170), Trust (0.160) and Reliability (0.100).

Keywords: service quality, health care, satisfaction, SERVQUAL, hospital

1   Introduction

Vietnam has gained remarkable achievements in economic development since the introduction of economic reforms. Following this economic development, the annual income per capita has been increasing. People with growing incomes are increasingly paying attention to health care. A majority of patients who have a high demand for health services begin to choose private health services providing better quality. Many patients are willing to go abroad for examination and treatment. Also, foreign hospitals' promotion is attracting more patients in the country. This has posed great challenges for public hospitals in the country.

Hue University Hospital (HUH) is one of the largest public hospitals in Hue City that are equipped with modern medical machines and applied with advanced technologies in health care and surgery. However, in order to attract patients to come and go back to the hospital for examination and treatment, attention must be paid not only to equipments and facilities but also the quality of health care services. How is the patient's satisfaction with the health care service quality evaluated at HUH? This paper focuses on evaluating the patient's perception on the quality of health care services at HUH and their effects on the satisfaction of the patients.

2   Method

2.1   Service quality and the research model

Service quality is a measure of how well the service level that is delivered matches customer expectations. Parasuraman et al. (1988) defined service quality as the difference between customer's expectation and perception. SERVQUAL is one of famous service quality scales having much acceptance by researchers in studying service quality of many different types of services. According to Parasuraman et al. (1988) the items in SERVQUAL are grouped into five distinct

dimensions including reliability (ability to perform the promised service dependably and accurately), responsiveness (willingness to help customers and provide prompt service), assurance (knowledge and courtesy of employees and their ability), empathy (caring, individualized attention the firm provides for its customers) and tangibility (physical facilities, equipment, and appearance of personnel).

SERVQUAL has been applied to many different types of services and is considered to be highly reliable. Considering health care service organization, a number of studies applied SERVQUAL to measure service quality. For example, Youssef et al. (1996) assessed service quality in the National Health Service of United Kingdom Hospital. Lim and Tang (2000) evaluated patients' expectations and satisfactions in hospitals in Singapore. Anderson (1995) also measured the quality of service provided by the clinic at the University of Houston Health Center. SERVQUAL is also applied in this study. However, HUH is a typical public hospital in Hue City. Its functions are not only examination, treatment but also education, training and conducting scientific researches. SERVQUAL scale was first adjusted to fit with the environment of HUH. The second adjustment of the scale was made after discussing with the staff from Marketing Department of HUH and 10 patients. Discussion results show that items of "responsiveness" can be subsumed into "empathy" and "price" and should be added into the scale because the price highly affects the patient's satisfaction. After adjusting and adding new observation variables, the service quality scale of HUH includes 26 observation variables measuring its five components: reliability (6), assurance (4), empathy (6), tangible (6) and price(4).

Studies of Youssef et al. (1996), Lim and Tang (2000) and Anderson (1995) showed that factors of the service quality scale are highly related to patients' satisfaction. According to Zeithaml and Bitner (2003), customers' satisfaction is measured by the level of their overall satisfaction with the service. The scale of patients' satisfaction in this study includes 5 variables to assess the degree of patients' satisfaction with medical services, attitude of staff, qualifications of doctors, hospital charges and medical equipments of the hospital. The relation between service quality factors and patients' satisfaction in HUH is shown in the following proposed research model.

Factors of the model are defined as follows:

— Reliability: expressed through the professional qualifications of doctors, test results, image diagnosis, and the hospital's appropriate treatment.
— Assurance: expressed through communication standards of the hospital's medical staff, the sensible medical examination, treatment time.
— Empathy: expressing the concern, caring and sharing to the patients.
— Tangibility: expressed through medical equipments and applied technologies, staff's uniforms.
— Price: expressing the suitable cost of the medical examination, treatment.
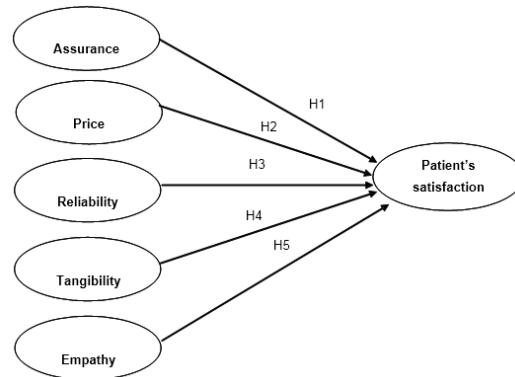
Fig. 1. Proposed Research Model

The hypotheses to be tested in this study are as follows:

— H_1: assurance has a positive impact on patients' satisfaction.
— H_2: the price (the suitable cost of medical examination and treatment) has a positive impact on patients' satisfaction.
— H_3: reliability has a positive impact on patients' satisfaction.
— H_4: the level of tangible equipments and facilities have a positive impact on patients' satisfaction.
— H_5: empathy has a positive impact on patients' satisfaction.

2.2 Data collection and analysis

The main respondents of this study are the patients who have been examined at HUH, aged 18 years old and over, and qualified to answer the questionnaire. The survey was conducted in January 2015 at all faculties providing medical services at HUH. There were 200 patients randomly selected from the list of patients provided by the Marketing Department. Data were processed by SPSS 19.0. Reliability and validity of the scale were evaluated by Cronbach's Alpha and Exploratory Factor Analysis (EFA). Variables that did not meet reliability, validity and convergence were eliminated to restructure the scale and readjust the research model and hypotheses. In addition, the study used the multi linear regression model to test the research hypotheses and determine the importance of components.

3 Results of the Study

3.1 Demographic Profile of the Sample

Table 1 shows that the percentages of female and male patients are 58.5% and 41.5%, respectively. The distribution of patients' age was reasonable:, the group from 31 to 45 years old is the highest (63.5 %), followed by the group of 18 – 30 (15.5%) and over 45 years old (21%). The survey results discovered that the majority of the patients using health care services is public officials (59.5%), 25.5% of the patients are other workers and 15% for licensed business. Regarding

to income levels, the largest group consists of people with a monthly income between 3 and 5 million VND (63.5%), then the next groups with 5 million VND (24%) and less than 3 million VND (12.5%). This result seems to be reasonable with the economic conditions and the average income per capita in Thua Thien Hue province.

Table 1. Demographic Profile of the Sample

Profile variables	Frequency (n)	Percentage (%)
Gender		
Female	117	58.5
Male	83	41.5
Age		
18 - 30	31	15.5
31 - 45	127	63.5
46 or older	42	21
Job characteristics		
Public officials	119	59.5
Licensed business	30	15
Other workers	51	25.5
Income levels		
Less than 3 million VND	25	12.5
Between 3 and 5 million VND	127	63.5
Over 5 million VND	48	24

Source: survey in 2015

3.2   Patients' satisfaction

A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used. The Cronbach's Alpha values of reliability, assurance, empathy, tangible, price and satisfaction are 0.705, 0.712, 0.739, 0.734, 0.791 and 0.81, respectively. According to Churchill (1979), a Cronbach's Alpha score larger than 0.7 is generally acceptable as sufficiently accurate for a construct. Therefore, the scale is considered to be satisfactory. In order to conduct the EFA of health care service quality at HUH, the entire study sample has to be tested for their fitness. Eight items (the hospital staff is not harassed), do not ask the patients for bribes; examination & treatment areas are clean, airy, well-equipped; the doctors work conscientiously, medical services (examination, diagnostic imaging, ultrasound scan) should be performed during the day; no appointments for the following day; the medical records are stored carefully; the hospital has an exemption policy for poor patients; the staff is attentive and polite; and medical workers who are always welcoming were eliminated step by step because the loading factors of these items are less than 0.5. Kaiser- Meyer – Olkin (KMO) value is 0.742 (> 0.7) and the Bartlett's Test

of Sphericity is significant at 0.000 (< 0.05). These results indicate that the study sample is adequate to be used in factor analysis. There are 6 factors extracted with Cumulative Variance explaining 69.767% (> 50%) of the sample total variance, which proves the suitability of factor formation.

Table 2. Loading Factors of Health Care Service Quality Construct

Items	Component					
	1	2	3	4	5	6
Medical costs and the quality of services provided are suitable (A1)	0.743					
Doctors always help and encourage patients (A2)	0.741					
Records, medical procedures are simple, fast (A3)	0.737					
Waiting time for examination, diagnostic tests, and procedures of obtaining results are reasonable (A4)	0.642					
Medical fees in private clinics are higher than those at the hospital (P1)		0.824				
Willing to pay higher costs to get better services (P2)		0.819				
Medical fees at the hospital are reasonable (P3)		0.770				
Doctors' prescriptions are very reasonable (R1)			0.793			
Test results, diagnostic imaging performed by the hospital are correct (R2)			0.655			
The hospital's treatment is relatively good (R3)			0.633			
The architecture of the hospital gives the patients impression (T1)				0.815		
Uniforms of the hospital employees are easily identified (T2)				0.639		
Medical equipments at the hospital are modern (T3)				0.565		
The guidelines set is prominently observed (T4)				0.557		
Medical waiting rooms are clean and comfortable (I1)					0.876	
Guidance and counseling staff answers clearly (procedures, medical procedures, queries) (I2)					0.624	
Doctors have professional ethics (Tr1)						0.754
Trust in doctors' professional qualifications (Tr2)						0.670

Source: survey in 2015

The final EFA of health care service quality presented in Table 2 shows that the scale of health care service quality at HUH is restructured into 6 components. Component 1 includes items A1, A2, A3 and A4. These variables are related to the assurance issues for the patients when they go to the hospital for health check-ups. Therefore, this factor is named as "Assurance". Component 2 includes three items P1, P2 and P3. These variables are relevant to price, thus it is named as "Price". Three items of component 3 are R1, R2 and R3. These variables are related to the confidence of customers to HUH. It is named as "Reliability". T1, T2, T3 and T4 are four items of component 4. These variables are related to medical equipment, facilities, and staff

uniforms. It is called "Tangibles". I1 and I2 are related to a picture that HUH is developing. Therefore, it can be called "Image". Tr1 and Tr2 cover patients' trust in the hospital's doctors, thus it is named as "Trust".

As mentioned above, The Cronbach's Alpha value of patients' satisfaction is 0.81. KMO is 0.763, the Barlett's test is significant at 0.000 and Cumulative Variance explains 59.488% of the sample total variance, which also proves the suitability of the factor formation. In order to study the impacts of health care service quality on patients' satisfaction, the following multi-linear regression model is used.

$$Y = \beta_0 + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_4 F_4 + \beta_5 F_5 + \beta_6 F_6$$

in which, Y is the patient's satisfaction with the quality of health care services at HUH; F_1, F_2, F_3, F_4, F_5 and F_6 are Assurance, Price, Reliability, Tangibles, Image and Trust, respectively. Based on this regression, H_5 needs to be adjusted and H_6 will be added for testing.

H_5: good image has a positive impact on patients' satisfaction

H_6: trust has a positive impact on patients' satisfaction

Table 3 shows that R^2 is 0.744 and adjusted R^2 is 0.736. It means that 73.6% of the patient's satisfaction variation is generally explained by 6 observed variables. In addition, F is significant at 0.000; it means that with the statistical confidence level of 95%, the hypothesis H_0 (H_0: $\beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$) is rejected.

Table 3. Suitability of the Regression Model

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.863a	0.744	0.736	0.51372095	1.891

Source: survey in 2015

Table 4. Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
Constant	0.470	0.158		2.967	0.003	0.158	0.783		
F_1	0.324	0.036	0.403	8.997	0.000	0.253	0.395	0.695	1.438
F_2	0.122	0.029	0.184	4.199	0.000	0.064	0.179	0.723	1.383
F_3	0.082	0.037	0.100	2.216	0.028	0.009	0.155	0.685	1.460
F_4	0.159	0.035	0.208	4.551	0.000	0.090	0.228	0.666	1.501
F_5	0.115	0.029	0.170	3.997	0.000	0.058	0.171	0.769	1.300
F_6	0.130	0.035	0.162	3.721	0.000	0.061	0.198	0.735	1.361

Source: survey in 2015

Regression results are presented in Table 4. There are six components/factors that affect the patient's satisfaction with the quality of health care services at HUH. Six components of health care service quality are positively related to the patient's satisfaction. It means that six components play an important role in contributing to the patient's satisfaction, as follows: Assurance (0.403), Tangible (0.208), Price (0.184), Image (0.170), Trust (0.160) and Reliability (0.100). Therefore, it is necessary to pay attention to the improvement of Assurance, Tangible, Price, Image, Trust and Reliability to increase the patient's satisfaction. In fact, there are many factors forming the impact of health care service quality on the patient's satisfaction, but communication by doctors and other medical staffs, time for examining, testing, receiving results are the most important. Patients come to the hospital to get an insight understanding of their health situation; they expect not only specialist qualifications from doctors but also good communication and polite attitude by other medical staffs at all time (from ordering, consulting, testing, etc.). In order to increase the patient's satisfaction, HUH needs to improve the quality of health care services in general and pay much attention to the development of human resources, improvement of staff performance and capacity to serve patients in particular.

Table 4 also shows that the regression model has no multicollinarity because the Variance Inflation Factor (VIF) of all independent variables are less than 10 and the tolerance of variables is larger than 0.1. In addition, Durbin – Watson statistical index is 1.891 (< 2); it means that there is no autocorrelation of errors occuring (Hoàng Trọng & Chu Nguyễn Mộng Ngọc, 2008). Therefore, the regression model and all hypotheses (H_1, H_2, H_3, H_4, H_5 and H_6) are accepted. It means that components of health care service quality at HUH have positive impact on the patient's satisfaction.

4   Concluding remarks

From on the data collected from 200 patients, the results of the study on the patient's satisfaction with the quality of health care services at HUH are as follows:

- The majority of the patients using health care services are females older than 30 years of age. These patients are working in public organizations with a monthly income of 3 to 5 million VND.
- There are six components (Assurance, Price, Reliability, Tangibles, Image and Trust) that constructed the scale of health care service quality in HUH.
- These six components play an important role in contributing to the patient's satisfaction, as follows: Assurance (0.403), Tangible (0.208), Price (0.184), Image (0.170), Trust (0.160) and Reliability (0.100).

In order to increase the patient's satisfaction, it is necessary to pay attention to the improvement of Assurance, Tangible, Price, Image, Trust and Reliability, especially HUH needs to pay much attention to the development of human resources, improvement of staff performance and capacity to serve patients.

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